

**THE OFFICE OF REGULATORY STAFF  
DIRECT TESTIMONY AND EXHIBITS  
OF**

**WILLIE J. MORGAN**

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COMMISSION



**DOCKET NO. 2004-357-W/S  
APPLICATION OF  
CAROLINA WATER SERVICE, INC.  
FOR ADJUSTMENT OF  
RATES AND CHARGES**

**TESTIMONY OF WILLIE J. MORGAN**

**FOR**

**THE OFFICE OF REGULATORY STAFF**

**DOCKET NO. 2004-357-WS**

**IN RE: CAROLINA WATER SERVICE, INC.**

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND  
OCCUPATION.**

**A.** My name is Willie J. Morgan, and my business address is 1441 Main Street, Suite 300, Columbia, South Carolina 29201. I am employed by the state of South Carolina, Office of Regulatory Staff (ORS) as the Program Manager for the Water and Wastewater Department.

**Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND  
EXPERIENCE.**

**A.** I received a Bachelor of Science Degree in Engineering from the University of South Carolina in 1985 and a Master of Arts Degree in Management from Webster University in 2000. I am a licensed Professional Engineer registered in the state of South Carolina. My professional affiliations are as a member of the American Water Works Association (AWWA) and the South Carolina Section of the American Water Works Association (SC-AWWA). After graduation from the

1 University of South Carolina, I was employed by the South Carolina Department  
2 of Health and Environmental Control (DHEC) as an Environmental Engineer  
3 Associate. Later, I was promoted to the position of Permitting Liaison where I  
4 assisted industries and the public with environmental permitting requirements in  
5 the state of South Carolina. This assistance included providing information about  
6 air quality, solid and hazardous waste management, and water and wastewater  
7 management requirements. I was employed by DHEC for nineteen years. On  
8 October 2, 2004, I joined the Office of Regulatory Staff as the Program Manager  
9 for the Water and Wastewater Department.

10 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY INVOLVING**  
11 **CAROLINA WATER SERVICE, INC. FOR THIS PROCEEDING?**

12 A. The purpose of my testimony is to set forth my findings and the ORS staff's  
13 findings relative to a review of the rate increase application submitted by Carolina  
14 Water Service, Inc. ("CWS") and the audit of various CWS water and wastewater  
15 systems. Specifically, I will focus on the facility's engineering and planned  
16 construction activities and environmental compliance issues.

17 **Q. ARE YOUR FINDINGS AND THE ORS STAFF'S FINDINGS SET FORTH**  
18 **IN YOUR TESTIMONY AND ATTACHED EXHIBITS?**

19 A. Yes.

20 **Q. PLEASE EXPLAIN HOW YOU COMPILED INFORMATION FOR YOUR**  
21 **REVIEW.**

22 A. I used information provided by CWS in its application, data request responses,  
23 and information gathered through on-site visits. I further consulted with and used

1 information from DHEC, the Environmental Protection Agency (EPA),  
2 wastewater treatment facility vendors and the National Association of Regulatory  
3 Utility Commissioners (NARUC). Using this information, ORS staff was able to  
4 obtain a better understanding of CWS's system design and rate structure.

5 **Q. PLEASE EXPLAIN EXHIBIT WJM-1 OF YOUR REPORT.**

6 A. Exhibit WJM-1 is a schematic showing the location of the eleven wastewater  
7 treatment facilities (WWTFs). In addition, CWS has wastewater collection  
8 systems in York, Beaufort, and Richland counties. Also, listed on Exhibit WJM-1  
9 are the drinking water systems that are owned and operated by CWS. Some of the  
10 drinking water systems include water supply wells and a distribution system.  
11 Other drinking water systems consist of a distribution system only.

12 **Q. PLEASE EXPLAIN EXHIBIT WJM-2 OF YOUR REPORT.**

13 A. Exhibit WJM-2, consisting of thirty pages, sets forth a summary of the water  
14 supply, water distribution, wastewater treatment, and wastewater collection  
15 services inspected by ORS.

16 **Water Supply Distribution**

17 CWS currently provides adequate water distribution service to its residential and  
18 commercial customers. There is neither construction activity being proposed by  
19 CWS for the distribution portion of its water systems nor is there an immediate  
20 need for an upgrade or reconstruction of the distribution portion of the systems.  
21 Water is distributed by CWS from wells owned by CWS and from other entities  
22 providing bulk water to CWS.

**Water Supply**

Inspections of the water supply sources that are owned by CWS revealed several sources that are in need of repair. The repair needs mainly relate to routine repair of well houses.

**Sewer Collection Systems**

CWS currently provides adequate wastewater collection service to its residential and commercial customers. There is neither construction activity being proposed by CWS for the collection portion of its systems nor is there an immediate need for an upgrade or reconstruction of the collection portion of the systems.

**Sewer Treatment Systems**

Inspections of the treatment portions of the systems which discharge treated wastewater to either a sprayfield or surface water bodies revealed several deficiencies and various needs for repairs that are noted in the site inspection reports contained in Exhibit WJM-2.

**Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

**A.** Yes it does.

**DIRECT EXHIBITS**  
**OF**  
**WILLIE J. MORGAN**

**DOCKET NO. 2004-357-W/S**  
**APPLICATION OF**  
**CAROLINA WATER SERVICE, INC.**  
**FOR ADJUSTMENT OF**  
**RATES AND CHARGES**

**EXHIBIT INDEX OF THE WATER/WASTEWATER DEPARTMENT**

**THE OFFICE OF REGULATORY STAFF**

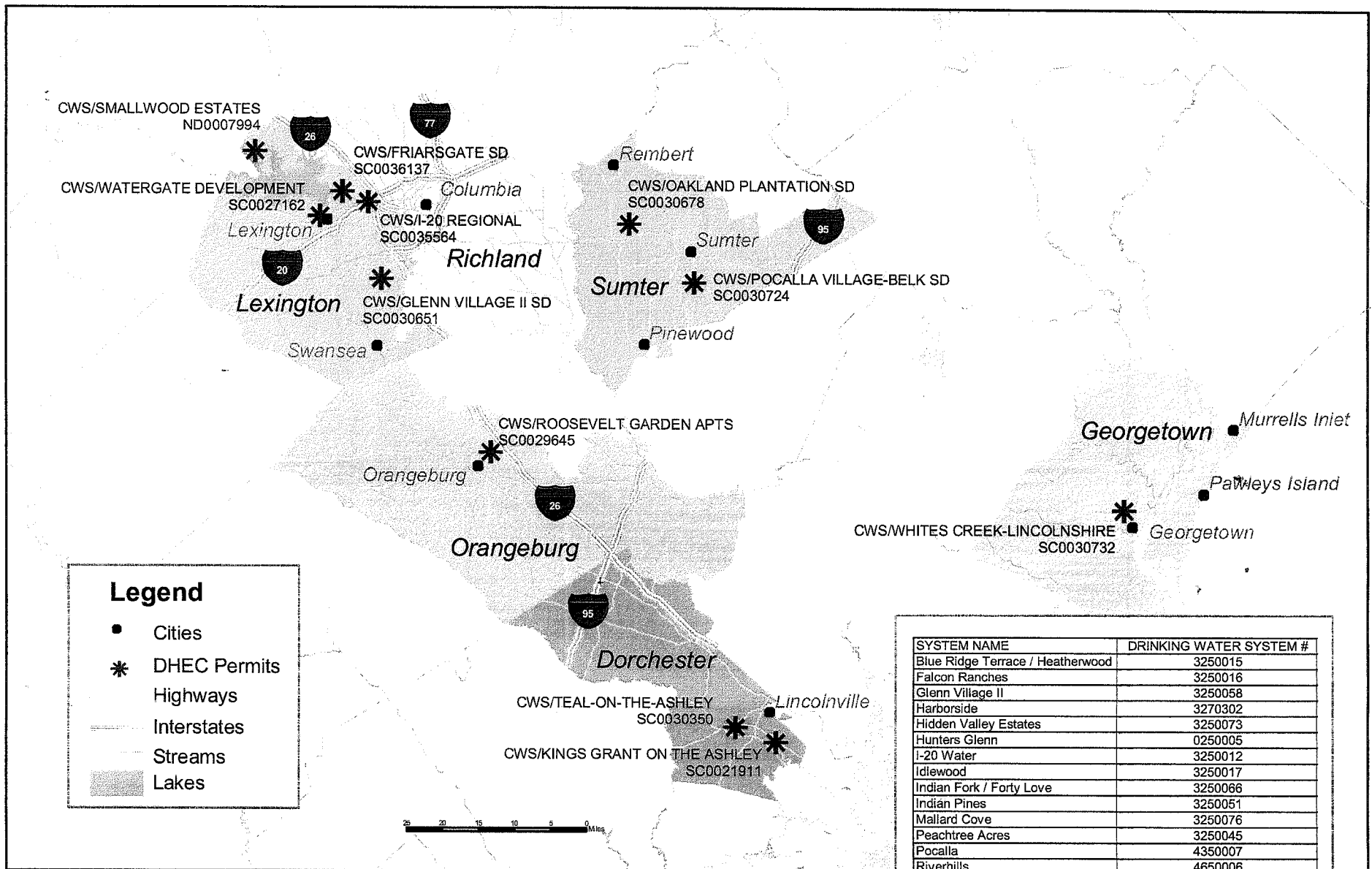
**DOCKET NO. 2004-357-WS**

**CAROLINA WATER SERVICE, INC.**

**WILLIE J. MORGAN TESTIMONY**

<b><u>EXHIBIT NO.</u></b>	<b><u>EXHIBIT TYPE</u></b>	<b><u>PREPARED BY</u></b>
WJM-1	CWS's WWTFs Location and Drinking Water System Listing	DHEC
WJM-2	System Inspection Reports	ORS

# **EXHIBIT WJM-1**



## Carolina Water Service, Incorporated

Wastewater Collection Systems also in York, Beaufort and Richland County

# **EXHIBIT WJM-2**



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~174

System Type: Collection and Transfer System      Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: Forty Love (92 cust.),  
Office of Regulatory Staff      Indian Fork (82 cust.)

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: Collection and Transfer System

Extent of Treatment: Collection and Transfer to Richland County and Chapin at county line

System Components Inspected	Yes	No
Chlorinator		X
Other Chemicals in Use		X
Aerators		X
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Did not evaluate		
Lift Stations: Number 2	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County and Richland County

Subdivision provided water by this Utility: Yes

Comments: There are no upgrades planned. Forty Love is in Richland County. Indian Fork is in Lexington County.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~3244

System Type: Collection and Treatment System      Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: Friarsgate  
                          Office of Regulatory Staff      Lexington County, Richland County

Company Representative: Mr. Dana L. Reeder  
    Mr. Robert Gilroy/Bruce Haas

Type of Plant: Collection and Biological Treatment System

Extent of Treatment: Biological Treatment with Surface Water Discharge using NPDES permit (SC0036137)

System Components Inspected	Yes	No
Chlorinator	X	
Other Chemicals in Use	X	
Aerators	X	
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence <sup>1</sup>	X	
Erosion of Dikes		X
Odor <sup>2</sup>	X	
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent <sup>3</sup> : Did not evaluate		
Lift Stations: Number 3	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County - WWTF, Lexington & Richland County - Collection

Subdivision provided water by this Utility: No

Comments: Most of the homes served by the utility in the Friarsgate subdivision are located in Richland County. There are three lift stations located throughout the subdivision.

Influent is received at the WWTF via multiple influent pipes. The influent is received at a single holding lagoon. The wastewater is split and distributed to

separate treatment areas (area #1 or area #2). The wastewater is then discharged to the single onsite disinfection unit. The wastewater is disinfected with chlorine gas in the disinfection chamber followed by a dechlorination process with sulfur dioxide. The treated wastewater is then discharged to the Saluda Shoals location on the lower Saluda River. This discharge point is approximately 7 miles from the WWTF.

- Footnotes:
1. A section of the fence located near the south part of the equalization basin needs to be repaired. An area approximately 50 feet wide is missing with a portion at each end being down.
  2. On the day of the inspection, sewerage odor was prevalent throughout the site of the WWTF around treatment area #1. However, there was no odor observed outside of the WWTF plant boundary. ORS has received several odor complaints about the CWS Friarsgate WWTF from neighboring residences. CWS has been working on the digester in an attempt to address the odor problem. The odor appears to be emanating from the area of the static bar screen, digester basin, and the influent bar screen equalization basin of treatment area #1 which is located on the left portion of the site after you enter the front gate.
  3. The actual discharge from the WWTF was not observed. However, the sampling point of the WWTF effluent was observed to have a distinct green algae color. This is located in the chamber immediately after the dechlorination process.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: -180

System Type: Collection System

Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Harborside, Harbour Place,  
Windward Point - Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: Collection System

Extent of Treatment: Collection and discharge to Watergate WWTF using 3 pump stations

System Components Inspected	Yes	No
Chlorinator		X
Other Chemicals in Use		X
Aerators		X
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Did not evaluate		
Lift Stations: Number 3	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County

Subdivision provided water by this Utility: Yes

Comments:



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~2609

System Type: Collection and Treatment System      Date Inspected: March 16, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: (several S/D) I - 20  
Office of Regulatory Staff      Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: Collection and Biological Treatment System

Extent of Treatment: Biological Treatment with Surface Water Discharge using NPDES permit (SC0035564)

System Components Inspected	Yes	No
Chlorinator	X	
Other Chemicals in Use (sulfur dioxide)	X	
Aerators 18	X	
Plant fenced and Locked <sup>1</sup>		X
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant	X	
Color of Effluent:	Green	
Lift Stations: Number 15	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County

Subdivision provided water by this Utility: Yes

Comments: The curtain in the 2 acre pond separating the oxidation process from the polishing process needs to be replaced. The estimated cost to replace the curtain is \$7800. Influent enters the oxidation area via gravity through 2 influent pipes. There remains an additional pipe in the oxidation area of the pond that has been abandon. The effluent is pumped to the sampling point on Devega Drive and is

discharged by gravity to the lower Saluda River. The condition of the road to the sampling point was fair. The discharge is located on the lower Saluda River at a point approximately 2 miles away from the WWTF.

The NPDES permit limit for the discharge has been approved for the proposed upgrade. However, Carolina Water Service has not submitted a Preliminary Engineering Report (PER) or any construction plans to DHEC for approval on the proposed upgrade to the WWTF.

The sewer pipe to the small office was damaged and needs repairing. It appeared that a mower had clipped the exposed corner of the exterior part of the drain for the restroom at the office.

Footnote:

1. The gate to the lift station at the small office was unlocked and open. Inside the fence is the small office, 100k gallon elevated tank, 2 generators on wheels, and a 99 gallon gas tank on a trailer with wheels.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~711

System Type: Collection and Treatment System

Date Inspected: April 6, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Kings Grant and Plantation  
Ridge in Dorchester County

Company Representative: Mr. Dana L. Reeder

Type of Plant: Collection and Treatment System

Extent of Treatment: Collection and treatment in aboveground tanks with discharge to the Ashley River

System Components Inspected	Yes	No
Chlorinator Chlorine Tablets	X	
Other Chemicals in Use No Dechlorination		X
Aerators	X	
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor Sewage Odor	X	
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Could not evaluate		
Lift Stations: Number 2 pump stations on collection system	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Dorchester County

Subdivision provided water by this Utility: No (Summerville DPW)

Comments: The WWTF has 2 separate treatment systems. Wastewater is received via a single influent pipe and separated on-site to be treated in one of the two treatment systems. Leakage of sewage from an area around the pipe discharging the effluent from one of the treatment tanks is occurring at the treatment tank. The flow from the two treatment systems are then merged before entering the flow metering

chamber. The flow metering chamber has cracks. Cracks in the flow metering unit are causing treated sewerage to be released prematurely. The final discharge is an intermittent discharge from a wet well located at the WWTF. The formal discharge point is located approximately 1/10 mile downstream on Ashley River. The storage/office building at the WWTF needs a new roof. Possible future interconnection with Dorchester County. The system has a total residual chlorine (TRC) limit. Because the wastewater is not dechlorinated, the WWTF continuously fail its TRC limit.

Sewage odor existed around the interior of the fence for the wastewater treatment facility (WWTF). However, we were unable to walk the entire outside perimeter of the fence around the WWTF due to the heavy vegetative growth.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~265

System Type: Collection and Treatment System      Date Inspected: April 6, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: Lincolnshire  
                          Office of Regulatory Staff      Georgetown County

Company Representative: Mr. Dana L. Reeder

Type of Plant: Collection and Treatment System

Extent of Treatment: Collection and treatment in aboveground compartmentalized tank with discharge to an unnamed tributary

System Components Inspected	Yes	No
Chlorinator Chlorine Gas	X	
Other Chemicals in Use No Dechlorination		X
Aerators	X	
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae	X	
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Clear		
Lift Stations: Number 1 pump station on collection system	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily (1 main person & a part-time person)

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Georgetown County

Subdivision provided water by this Utility: No (Georgetown Water and Sewer District)

Comments: Wastewater is received at the WWTF and then pumped up into the compartmentalized treatment tank (aeration, clarifier, & digester). The treatment tank was recently sandblasted and painted (completed on Tuesday, April 5, 2005). Only single family homes are on the system. In general, the homes are low income homes. CWS has had sewer payment problems with the customers in this area of

their system. The system is over 20 years old and has mostly clay pipes for the collection system. Water infiltration is a problem for the collection system. The flow from the treatment system is then discharge to an unnamed tributary. Possible future interconnection with Georgetown Water and Sewer District. The system has a total residual chlorine (TRC) limit. Because the wastewater is not dechlorinated, the WWTF continuously fail its TRC limit. A 60KV emergency generator will be installed. The capacity of the WWTF is 125k gallon per day.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~30

System Type: Collection and Transfer      Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: Mallard Cove, Seay Cove  
Office of Regulatory Staff

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: Collection and transfer (1 lift station pumps wastewater to Watergate (Lands End))

Extent of Treatment: 1 Pump Station

System Components Inspected	Yes	No
Chlorinator		X
Other Chemicals in Use		X
Aerators		X
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Did not evaluate		
Lift Stations: Number 1	X	
Failure Warning System	X	
Electric Wiring Acceptable		X
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County

Subdivision provided water by this Utility: Yes

Comments: The electrical conduit needs to be reconnected.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~85

System Type: Collection and Treatment System      Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: Smallwood  
Office of Regulatory Staff      Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: Collection and Biological Treatment System

Extent of Treatment: Biological Treatment with Discharge to Sprayfield using no discharge permit (ND0007994)

System Components Inspected	Yes	No
Chlorinator	X	
Other Chemicals in Use		X
Aerators (4 = 3 in oxidation area + 1 in polishing area)	X	
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Did not evaluate		
Lift Stations: Number 1	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction	X	

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County

Subdivision provided water by this Utility: Yes

Comments: There are no upgrades planned. However, the 20-acre sprayfield was being repaired. Only one aerator was being used in the primary (oxidation) area of the lagoon. The lagoon is divided within by a curtain.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~129

System Type: Collection and Transfer System      Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: Stonegate  
                          Office of Regulatory Staff      Lexington County

Company Representative: Mr. Dana L. Reeder  
    Mr. Robert Gilroy

Type of Plant: Collection and Transfer System

Extent of Treatment: Collection and Transfer to Richland County

System Components Inspected	Yes	No
Chlorinator		X
Other Chemicals in Use		X
Aerators		X
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Did not evaluate		
Lift Stations: Number		X
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Only when complaints are received

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County

Subdivision provided water by this Utility: Yes

Comments: There are no upgrades planned. The system is a gravity sewer that transfers the collected wastewater to Richland County.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: -33

System Type: Collection and Treatment System

Date Inspected: April 6, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Teal on the Ashley  
Dorchester County

Company Representative: Mr. Dana L. Reeder

Type of Plant: Collection and Treatment System

Extent of Treatment: Gravity collection and treatment in lagoon with discharge to a tributary and eventually to the Ashley River

System Components Inspected	Yes	No
Chlorinator Sandrill Tablets	X	
Other Chemicals in Use No Disinfection		X
Aerators No Aeration		X
Plant fenced and Locked <sup>1</sup>	X	
Warning Signs Visible	X	
Holes in Fence <sup>1</sup>	X	
Erosion of Dikes		X
Odor		X
Grass Cut	X	
Duck Weed or Algae	X	
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Did not evaluate		
Lift Stations: Number 0		X
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Dorchester County

Subdivision provided water by this Utility: Yes

Comments: Upgrades are planned. However, possible future interconnection with Dorchester County. The system has a total residual chlorine (TRC) limit. Because the wastewater is not dechlorinated, the WWTF continuously fail its TRC limit.

Footnote: 1. The fence needed repair. Portions of the fence was non-existent.



## ORS WASTEWATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.      Number of Customers: ~1233

System Type: Collection and Treatment System      Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris      Subdivision Name: Watergate (Lands End),  
Office of Regulatory Staff      Harborside - Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: Collection and Biological Treatment System

Extent of Treatment: Biological Treatment with Surface Water Discharge using NPDES permit (SC0027162)

System Components Inspected	Yes	No
Chlorinator	X	
Other Chemicals in Use (sulfur dioxide)	X	
Aerators	X	
Plant fenced and Locked	X	
Warning Signs Visible	X	
Holes in Fence		X
Erosion of Dikes		X
Odor	X	
Grass Cut	X	
Duck Weed or Algae		X
Grease Build Up		X
Debris inside of Plant		X
Color of Effluent: Did not evaluate		
Lift Stations: Number 2	X	
Failure Warning System	X	
Electric Wiring Acceptable	X	
Overflows		X
Condition of Access Road: Good/Fair/Poor	Good	
New Construction		X

Frequency Checked by Licensed WWTF Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Location of System: Lexington County

Subdivision provided water by this Utility: Yes

Comments: There have been odor complaints. An odor scrubber has been installed for the 100k gallon equalization basin and static bar screen. The effluent is discharged to the 14 Mile Creek which is located approximately 5 ½ miles away. Planned upgrades to the WWTF include painting, corrosion repair on grates on treatment tank, and several odor abatement devices or equipment.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: -203

System Type: 2 Wells

Date Inspected: March 16, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Blue Ridge Terrace - 50 cust.  
Heatherwood - 125 cust./Calvin Acres - 25 cust.

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: 2 Wells [Well #1 - 20k gallon tank and Well #2 - 15k gallon tank]

Extent of Treatment: Well #1 - chlorination with lime for pH adjustment, Well #2 - chlorination with soda ash for pH adjustment.

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	2			X		
Pump Houses	masonite	2				X	#1 needs repair, #2 being repaired
Storage Tank(s)	metal						
	Pressurized	2		20k/15k	X		
	Non-Pressurized						
	Overhead						
Chlorinator		2			X		
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction					X		#2 well house was being upgraded

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: No (homes are on septic)

Comments: Well #1 is located in Calvin Acres S/D. Well #2 is located in Heatherwood S/D. Well house in Heatherwood was being repaired along with well piping. Well house in Calvin Acres is scheduled to be repaired.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~180

System Type: Bulk

Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Harborside, Harbour Place,  
Windward Point - Lexington County

Company Representative: Mr. Danna L. Reeder  
Mr. Robert Gilroy

Type of Plant: (From Lex. County Joint Municipal Water and Sewer District)

Extent of Treatment: Bulk

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites		0					Bulk
Pump Houses		0					
Storage Tank(s)							
	Pressurized						
	Non-Pressurized						
	Overhead						
Chlorinator							Bulk
Meters					X		
Fire Hydrants		X					Several
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments:



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~204

System Type: 2 Wells

Date Inspected: March 16, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Hidden Valley Estates - Gaston  
Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: 2 Wells [1 - 75k gallon tank on site of Well #1]

Extent of Treatment: Well #1 - chlorination with soda ash for pH adjustment, Well #2 - chlorination with soda ash for pH adjustment. Soda ash (sodium hypochlorite - 79 gal tank).

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	2			X		
Pump Houses	masonite	2				X	#1 needs repair, #2 needs repair
Storage Tank(s)	metal						
	Pressurized						
	Non-Pressurized	1		75k	X		Elevated tank
	Overhead						
Chlorinator		2			X		
Meters					X		
Fire Hydrants		-12					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction					X		

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: No (homes are on septic)

Comments: Well #1 is located on site of 75k gallon elevated storage tank. Well #2 is located across the street from well #1.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~93

System Type: 3 Wells

Date Inspected: March 16, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Hunters Glen - Aiken

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: 3 Wells [Well #1 - 12k and 16k gallon tanks, Well #2 - 100 gallon pneumatic tank, Well #3 - 80 gallon tank]

Extent of Treatment: Well #1, #2, #3 - chlorination with soda ash for pH adjustment. Soda ash (sodium hypochlorite).

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	3				X	#2 fence needs tree removed
Pump Houses	masonite	3			X		#1 being repaired
Storage Tank(s)	metal						
	Pressurized	3			X		
	Non-Pressurized						
	Overhead						
Chlorinator		3			X		
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction					X		

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: No (homes are on septic)

Comments: Well #1 needs sign and telephone number on fence. Construction work is being done, but not complete. Pump at Well #1 will be moved inside a house. Well #2 has tree in fence that needs to be removed.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~2194

System Type: Bulk (10 in mtr., 6 in. mtr., 2 in. mtr.) Date Inspected: March 16, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: (Several S/D) I - 20  
Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: (From City of West Columbia)

Extent of Treatment: Bulk with elevated 100k gallon tank, 320k gallon aboveground tank, 100k gallon tank.

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites							Bulk from City of West Columbia
Pump Houses							
Storage Tank(s)	metal						
	Pressurized						
	Non-Pressurized	3					100k gallon elevated, 320k gallon aboveground, 100k gallon aboveground
	Overhead						
Chlorinator							Bulk
Meters					X		
Fire Hydrants		X			X		Several
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments: System has elevated tank at small office. It needs repairing. Gate for fence was not closed or locked. Inside the fence is the small office, 100k gallon elevated tank, 2 generators on wheels, and a 99 gallon gas tank on wheels.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~17

System Type: 2 Wells (#1 Sand Well, #2 Rock Well) Date Inspected: March 16, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Indian Pines - Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: 2 Wells [1 - 15k gallon tank]

Extent of Treatment: Well #1 and #2 has a single 15k gallon tank - chlorination with soda ash for pH adjustment. Soda ash (sodium hypochlorite).

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	1			X		
Pump Houses	masonite	2				X	Well house need painting near bottom
Storage Tank(s)	metal						
	Pressurized	1		~15k			
	Non-Pressurized						
	Overhead						
Chlorinator		1			X		
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction					X		The rock well was recently restored using a hydrofracking process.

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: No (homes are on septic)

Comments: A naturally occurring radiological problem exists with the sand well. The sand well is being used sparingly.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~30

System Type: 1 Well

Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Mallard Cove & Seay Cove  
Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: 1 Well - 2k gallon storage tank

Extent of Treatment: Chlorination and phosphate for pH adjustment.

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites		1					Bulk from City of West Columbia
Pump Houses		1					
Storage Tank(s)	metal						
	Pressurized	1		2k			
	Non-Pressurized						
	Overhead						
Chlorinator		1					
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments: Well house needs repairing including roof. This has been proposed. Replacement tank plans were scheduled to be submitted to DHEC on tomorrow. The new tank will be 7.5k gallons.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~169

System Type: 2 wells

Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Smallwood  
Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: 2 Wells [One 15k gallon tank]

Extent of Treatment: Wells - chlorination with soda ash for pH adjustment. Soda ash (sodium hypochlorite). Softener is added to water.

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	2			X		
Pump Houses	masonite	1			X		
Storage Tank(s)	metal						
	Pressurized	1			X		
	Non-Pressurized						
	Overhead						
Chlorinator		1			X		
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments: No upgrades planned. The two wells are located in the woods behind the well house and tank.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~131

System Type: 3 wells

Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Stonegate - Richland County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: 3 Wells [Well #1 - 60 gallon tank, Well #2 - 10k gallon tank, Well #3 - 80 gallon tank]

Extent of Treatment: Well #1, #2, and #3 - chlorination with soda ash for pH adjustment. Soda ash (sodium hypochlorite). Well #1 has a water softener added.

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	3			X		#1 well is offsite
Pump Houses	masonite	3			X		
Storage Tank(s)	metal						
	Pressurized	3			X		
	Non-Pressurized						
	Overhead						
Chlorinator		3			X		
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments: Well #1 and house is located in a subdivision across the street that is not served by CWS.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~33

System Type: 1 well

Date Inspected: April 6, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Teal on the Ashley  
Dorchester County

Company Representative: Mr. Dana L. Reeder

Type of Plant: 1 Well [2k gallon tank]

Extent of Treatment: None

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	1			X		
Pump Houses	brick	1			X		
Storage Tank(s)	metal						
	Pressurized	1		2k	X		
	Non-Pressurized						
	Overhead						
Chlorinator							No Chlorination
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments: No upgrades planned. System is located in Summerville.



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~772

System Type: Bulk

Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Watergate (Lands End),  
Harbicide - Lexington County

Company Representative: Mr. Dana L. Reeder  
Mr. Robert Gilroy

Type of Plant: (From Lex. County Joint Municipal Water and Sewer District)

Extent of Treatment: Bulk

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites		0					Bulk
Pump Houses		0					
Storage Tank(s)							
	Pressurized						
	Non-Pressurized						
	Overhead						
Chlorinator							Bulk
Meters					X		
Fire Hydrants		X					Several
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments: Watergate (Lands End) has approximately 246 customers



## ORS WATER SYSTEM INSPECTION

Utility Name: Carolina Water Service, Inc.

Number of Customers: ~169

System Type: 8 wells

Date Inspected: March 17, 2005

Inspected By: Willie Morgan/Barry Morris  
Office of Regulatory Staff

Subdivision Name: Forty Love, Indian Fork  
Richland County

Company Representative: Mr. Danna L. Reeder  
Mr. Robert Gilroy

Type of Plant: 8 Wells [Forty Love - 10k and 6k gallon tank, Indian Fork - 10k and 6.5k gallon tank]

Extent of Treatment: All wells - chlorination with soda ash for pH adjustment. Soda ash (sodium hypochlorite)

System Components Inspected	Specific Type	Total #	PSI	Capacity	Compliance		Comments
					Yes	No	
Well Sites	bored	8			X		
Pump Houses	masonite	1/4			X		
Storage Tank(s)	metal						
	Pressurized	8			X		
	Non-Pressurized						
	Overhead						
Chlorinator		8			X		
Meters					X		
Fire Hydrants		0					
Electrical Wiring					X		
Exposed Pipe					X		
Air in Lines							Did not evaluate
Sand in Water							Did not evaluate
Clarity of Water							Did not evaluate
Leaks							None observed on system
Odor							None observed on system
Condition of Access Road:					X		
New Construction							None observed on system

Frequency Checked by Licensed Operator: Daily

Location of Utility Office: 110 Queen Parkway, West Columbia, SC, 29169

Subdivision provided wastewater service by this Utility: Yes

Comments: 10k gallon tank at Indian Fork is a pneumatic tank. 6.5k gallon tank at Indian Fork is located near tennis court.